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An Empirical Analysis of the Service Sector Transformation in SAFTA Member Countries

(TITLE)

BY

Md Tanvir Pavel

THESIS

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FOR THE DEGREE OF

Master of Arts in Economics

IN THE GRADUATE SCHOOL, EASTERN ILLINOIS UNIVERSITY
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DEPARTMENT OF ECONOMICS

MASTER'S THESIS

An Empirical Analysis of the Service Sector Transformation in SAFTA Member Countries

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Abstract

This paper makes an attempt to assess the transformation process of the service sector in South Asian Free Trade Area (SAFTA) by using a panel data over the period 1990 to 2010. Based on the regression analysis, the study investigates the existence and association between the output of the service sector and per capita national output by applying panel least squares along with fixed effects and random effects. The generalized least squares (GLS) approach with fixed effect estimation comes in handy in our analysis. The study reveals that the Gross Domestic Product (GDP) have a meaningful positive effect whereas urban population growth have a significant negative effect on the transformation process of the service producing sector in the SAFTA region. On the other hand, unlike some other papers, population does not appear to be significant factor of growth in service for the members of SAFTA. The study also observes that factors such as debt services on external debt are negatively related to the share of services while it is positively related to the gross fixed capital formation.

1. Introduction

The growing importance of services in the world economy and the accelerated growth rate of this sector in recent years have been a focus of significant policy discussion and analysis. The share of service sector in the United States GDP is 79.6 percent, while its share in India's GDP is 52.9 percent, and for Bangladesh its share accounts for 52.34 percent of gross domestic product (Business Maps of India, 2008). It is commonly believed by economists that the driver of both developed and developing economies in the last couple of years was the service sector. According to the World Development Indicators (2009), the service sector made up 64.2% of world gross domestic product. Kanapathy (2003) states that several domestic and international developments in the new millennium have prompted policy makers to re-engineer the economy, focusing on the development of the service sector and service trade, and to chart a new sustainable growth path. Li, Wang and Zhai (2003) treat service sector as an engine of economic growth as it enhances the scope to diversity trade, create jobs and provide opportunities for persons with minimal resources, particularly women, to become self-employed and economically productive.

Since the rate of growth of the population in South Asian countries is rising day by day and the existing manufacturing sectors have failed to absorb the addition to the labor force, the service sector emerged as a panacea for growing unemployment problem. Besides, in developing countries starting a business in the service sector does not, in general, require a great deal of human capital compared to starting a business in the manufacturing sector. Indeed, the manufacturing sector will in general require a substantial amount of both human and physical capital (as compared to the service sector). As a result, business in the service sector is relatively more attractive and accessible to the masses.

The services sector is highly diverse, ranging, from infrastructure services such as telecommunications, construction, transportation, financial services to tourism to business services that directly affect firm competitiveness, to social services such as health or education. In addition, there are many small businesses under the service sector that a poor and/or illiterate woman or man or young person can do with very low start-up funds like cleaning "business" (clothes or the streets); telecommunications with cell phones (selling units); (micro/small) venture to create coffee shops; internet café; street vendors; porters; small-scale artisans; barbers; and shoeshine boys etc. On the other hand, it will be interesting to acknowledge that, since these kinds of businesses require a small amount of capital, the parallel institution and promotion of small/micro-credits could speed up even further the burgeoning of the service sector.

Poverty is one of the most serious problem faced by South Asian countries and service sector is increasingly seen as a means to reduce poverty. Services help lessen poverty through two channels. Directly, they provide the largest source of new job growth. Indirectly, they provide the income that, when spent, drives further demand for goods and services and for the jobs to produce them. Thus, the establishment of economic policies destined to extensively promote the development and expansion of the service sector hence becomes a viable approach in the battle against poverty in these countries. This study which analyzes the transformation process of the service sector in South Asian Free Trade Area (SAFTA) is an attempt to understand this process and formulate recommendations to decision-makers for the creation of a macroeconomic environment that fosters the development of the service industry and help to eradicate poverty.

During the last two decades, South Asia experienced a stable growth in the service sector. Almost all the major economies of South Asia are continuously moving toward service based economic development as individuals demand for goods and services changes overtime and

dynamic behavior of individual preferences have merely shifted towards services. Shugan (1993) puts an important contribution in the literature by showing a causal relationship between income and services.

Advocates of positive income effect on service sector growth - Summers (1985), Baumol, Blackman and Wolf (1989) - have found a positive relationship between wealth and share of services in GDP. In contrast, Tether, Hipp and Miles (2001) have analyzed the service sector as having little or no productivity growth and were unable to innovate. In light of the above argument this paper seeks to examine the growth process of the service sector in SAFTA region and to evaluate its potential for contributing to growth. Based on service sector growth and its determinants, we used a dynamic panel technique for all the member countries of SAFTA excepting Afghanistan to understand how per capita GDP are related with the service sector share[1].

The key objective of this paper is to investigate the major determinants for the growth of the service sector in the SAFTA region over the 1990-2010 period. This will mitigate the dearth of studies on the development and importance of the service sector in South Asian region. Our major finding shows that factor such as per capita GDP have a meaningful positive impact and urban population growth rate have a significant negative impact on the development of transformation process of the service sector. The paper is organized as follows. Following the introduction, section 2 presents the historical and economic background of SAFTA in association with economic growth and evolution of the service sector of the SAFTA members. The review of existing literature comes in handy in section 3. In section 4, the methodology and data adopted in the study are discussed.

[1] We exclude Afghanistan from our model because of the data limitations.

Section 5 provides an explanation of our results and findings, and this work is concluded with policy recommendations in section 6.

2. Background of SAFTA

2.1 Historical View

Regional Trade Agreements (RTAs) have flourished globally to become a prominent feature of today's international trade environment. The trend is particularly pronounced over the past decade as existing RTAs are strengthened and expanded on a bilateral, sub-regional, regional and inter-regional scale, negotiated and concluded on a North-North, North-South and South-South scale, including between regional groupings.

The main economic reason behind regional trade blocks is to allow their regional members to benefit from economic cooperation and comparative advantages. So, to facilitate a friendly trading environment among a limited number of countries located geographically close to each other, RTAs have been established all over the world at an increasing pace, especially during the last two decades, which is partly due to failures of multilateral negotiations, especially at various ministerial meetings of the World Trade Organization (WTO). The economic goals behind RTAs are to generate significant benefits for its member countries by increasing intra-regional trade. To achieve such an economic integration within South Asia, Bangladesh proposed a regional cooperative body of South Asian leaders in 1980, which then led to the establishment of the South Asian Association for Regional Cooperation (SAARC) in 1985, the adoption of the SAARC Preferential Trading Arrangement (SAPTA) in 1993, and the agreement on the South Asian Free Trade Area (SAFTA) in 2004.

2.1.1 Establishment of SAARC

The idea of a South Asia Association for Regional Cooperation (SAARC) was mooted in 1980. During that time, the Government of the People's Republic of Bangladesh sent a proposal to the Heads of the States of seven South Asian countries to think about a platform of regional cooperation. Following that proposal, Foreign Secretaries of seven South Asian countries met for the first time in Colombo in April 1981. That meeting was followed by the foreign ministers' meeting in New Delhi in August 1983, the adoption of the Declaration on South Asian Regional Cooperation, as well as the launching of the Integrated Program of Action (IPA), which initially addressed five areas of cooperation: (i) agriculture, (ii) rural development, (iii) telecommunications, (iv) meteorology, and (v) health and population. Two additional areas, covering (vi) scientific and technological cooperation and (vii) sports, arts and culture were added to the IPA at a later stage.

At a meeting of Heads of State of Government, held in Dhaka on 7-8 December 1985, the seven South Asian countries – Bangladesh, Bhutan, India, Maldives, Nepal, Pakistan and Sri Lanka formed SAARC to promote economic, social and cultural cooperation (SAARC Charter, 1985). The newest member of SAARC is Afghanistan which has been included in 2005 (Sultana, 2007). The 1985 meeting in Dhaka is subsequently known as the first SAARC Summit. The main objective of SAARC is to promote active collaboration and mutual assistance among the member countries in the economic, social, cultural, technical and scientific fields. Besides, SAARC's general provisions are that (i) decisions at all levels in SAARC shall be taken on the basis of unanimity and that (ii) bilateral and contentious issues shall be excluded from the deliberations of the Association. SAARC also adopted three principles. First, the cooperation within the framework of the Association is based on respect for the principles of sovereign equality, territorial integrity, political independence, non-interference in the internal affairs of other States and mutual benefit. Second, such cooperation

is to complement and not to substitute bilateral or multilateral cooperation. And third, such cooperation should be consistent with the bilateral and multilateral obligations of its Member States.

Despite of various initiatives to the success of SAARC it has encountered multifaceted problems as other regional bodies in other parts of the world faced. The achievements of SAARC have been slow so far due to the regional political tension (Khan, 1999). Some take a very negative view of its achievement, questioning its relevance. They think that SAARC has no future and, will be a gross overstatement. There are rooms for taking a positive view that helps to throw one's belief in the favor of its future. There are some common areas and agendas where all SAARC countries have a stake, and hence, they do feel addressing them from a common platform.

2.1.2 From SAARC to SAPTA

Since its inception SAARC focused its work mostly in soft areas like health, population, cultural exchange, and sports. In the fourth SAARC Summit in Islamabad, held on 29-31 December 1988, the Heads of States were passed a study report on the cooperation in the areas of trade, manufactures and services. The recommendations of that study led SAARC leaders to think about a preferential trade arrangement within SAARC. A consultant was commissioned to carry out a study on Trade, Manufacture and Services (TMS) in the SAARC region. According to the consultant's recommendations three years later in 1991, further initiatives were taken towards a preferential trade arrangement at the sixth SAARC summit in Colombo on December 21, 1991. It was recognized that a specific agreement on an institutional framework is needed under which specific measures for trade liberalization among SAARC Member States can be taken.

The Member States of SAARC (Bangladesh, Bhutan, India, Maldives, Nepal, Pakistan and Sri Lanka) were agreed to establish the SAARC Preferential Trading Arrangement (SAPTA) at the seventh SAARC summit in Dhaka on April 10-11 1993. The main motto of that agreement is to promote and sustain mutual trade and the economic cooperation among the member states of SAARC. The agreement was signed on 11 April 1994 and in the eighth SAARC summit held in New Delhi on 2-4 May 1995, the SAPTA agreement was discussed in depth. Importance was given to technical meetings and the finalization of all necessary modalities so that SAPTA could start its journey by the end of 1995. Indeed, SAPTA entered into force on the 7th of December 1995.

SAPTA has been considered as a milestone for the member countries of SAARC. Although, SAPTA was a mildest form of integration, it provided the opportunity for greater forms of economic cooperation by promoting trade relations among the member states and to identify and remove trade barriers. SAPTA worked with four main tasks: tariff, para-tariff, non-tariff, and direct trade measures. While SAPTA adopted four major negotiation approaches (on product by product basis, across the board tariff reductions, sector wise, and direct trade measures), all leaders agreed that the main negotiations should be undertaken on a product-by-product basis. They also agreed that tariff, para tariff and non-tariff barriers will be identified step by step and removed successively and gradually. The agreement also includes special attention for the less developed countries (LDCs)[2].

It was agreed that the products covered under the agreement must satisfy the rules of origin in order to be given preferential treatment. The purpose of the rules of origin is to ensure that the benefits of tariff concessions exchanged under SAPTA are given only to products originating in

[2] Article 10 of South Asian Free Trade Agreement

Contracting States. SAPTA also stipulated that any facility under this agreement must be active for the subsequent three years that no change should be made before three years unless any facility would cause a serious injury to the contracting states. Revisions were also possible after discussing the matter with all contracting states and after the initial three years.

2.1.3 From SAPTA to SAFTA

SAPTA was envisaged primarily as the first step towards the transition to a South Asian Free Trade Area (SAFTA) leading subsequently towards a Customs Union, Common Market and Economic Union. Within SAPTA, Contracting States had agreed to undertake measures for developing and improving communication systems, transport infrastructure and transit facilities for accelerating the growth of trade within the region. There were three rounds of negotiations about how much concessions will be given to each other. There were two scales for approving concessions like for LDCs and non-LDCs. From a technical perspective, these rounds were the steps towards SAFTA. In 1995, the Sixteenth session of the Council of Ministers (New Delhi, 18-19 December 1995) agreed on the need to strive for the realization of SAFTA and to this end an Inter-Governmental Expert Group (IGEG) was set up in 1996 to identify the necessary steps for progressing to a free trade area. The Tenth SAARC Summit (Colombo, 29-31 July 1998) decided to set up a Committee of Experts (COE) to draft a comprehensive treaty framework for creating a free trade area within the region, taking into consideration the asymmetries in development within the region and bearing in mind the need to fix realistic and achievable targets.

The agreement of SAFTA was signed on 6 January 2004 during Twelfth SAARC Summit held in Islamabad, Pakistan. The main objectives of SAFTA are to facilitate regional trade without any barriers and to share each country's strategic advantage with others. Hence, at least from a legal

point of view, SAFTA has emerged as a regional trade block with its currently eight member states namely, Afghanistan, Bangladesh, Bhutan, India, the Maldives, Nepal, Pakistan, and Sri Lanka. Consistent with the 2004 agreement, SAFTA entered into force on January 1, 2006 and the Trade Liberalization Program (TLP) commenced from 1st July 2006. While SAPTA also stipulated some measures to adopt a free trade area, there are considerable differences between SAPTA and SAFTA.

Presently, SAFTA is a bit more than three years in operation and it is a very short time to diagnose the effectiveness of such a regional agreement. However, some studies (Pigato, et. al. 1997, Raihan 2008, and Raihan and Razzaque 2007) expressed optimism about the impact of SAFTA, arguing that regional trade liberalization in South Asia generates significant benefits for its member countries by increasing intra-regional trade. Alternatively, many scholars (Bandara 2003, Srinivasan 1994 and Srinivasan and Canonero 1995) are skeptical about the impact. Despite this criticism, it can be said that a more effective SAFTA could lead into a successful economic union, which is supposed to be the ultimate target of it. In short, a roadmap towards a South Asian economic union can be established through the following channel.

SAARC ⟶ SAPTA ⟶ SAFTA ⟶ Customs Union ⟶ Economic Union

This expected outcome is fully dependent on successful implementation of SAFTA agreement which depends on political stability in this region particularly between India and Pakistan. To increase intra-regional trade under SAFTA some other important issues have to be resolved too. These include – reducing the size of sensitive list, settling appropriate rules of origin, improvement of physical infrastructure and cracking the problem of illegal border trade. Until and unless such issues are properly identified and resolved, the expected benefits from SAFTA will only be expected.

2.2 Economic View

Although SAFTA was a mildest form of integration, it provided the opportunity for greater forms of economic cooperation. The schedule of tariff reduction is described in the agreement of SAFTA. According to this, all member countries of SAFTA will reduce tariff to 0-5 percent in two phases, namely SAFTA First Phase and SAFTA Second Phase. The countries agreed on the time frame to reduce the tariff are different for LDC and Non-LDC member countries. The reduction of tariff is shown in Table 1.

Table 1 illustrates that, in SAFTA First Phase, Non-LDC member countries reduced tariff up to 20 percent (for LDCs 30 percent) on its imported commodities and was applied from January 01, 2006, within two years. If the existing tariff rates were below 20 percent (for LDCs 30 percent) on January 2006, then there was an annual reduction of 10 percent (for LDCs 5 percent) on margin of preference basis for each of these two years. In SAFTA Second Phase, all the member countries will reduce tariff to 0-5 percent which is applied from January 01, 2008. The time schedule is 5 years for two of the Non-LDC member countries, India and Pakistan; and 6 years for another Non-LDC member country, Sri Lanka. For LDC members, the time schedule is of 8 years. Therefore, India and Pakistan will fully implement SAFTA on 2013, Sri Lanka on 2014 and Afghanistan, Bangladesh, Bhutan, Nepal and Maldives on 2016.

Despite of this agreement the volume of intra regional trade in South Asia is very low compared to other regional trading blocs in the world. The establishment of a free trade area with low volume intra regional trade generates limited scope of gaining such free trade arrangement (Bandara and Yu, 2003). This is one of the major criticisms against the success of SAFTA.

2.3 Main Economic Indicators of SAFTA Members

Based on the poverty line, about two thirds of the world's poor live in Asia and the Pacific. The number of poor people defined as those living under $1.25 and $2.00 per capita per day at 2005 purchasing power parity in South Asia in 2010 are 504.14 million and 1055.78 million respectively. The 2010 poverty scenario of SAFTA member countries is shown in Table 2.

According to Table 2, India is the largest number of the region's poor followed by Bangladesh, Pakistan, and Nepal. It is true that South Asia's poverty rate fell from 60 percent in 1981 to 40 percent in 2010 but it did not fall fast enough to reduce the total number of poor people.

Consistent with widespread poverty in South Asia, per capita gross domestic product in the region is low. The GDP per capita; PPP (US dollar) in South Asia was last reported at 3228.97 in 2010, according to a World Bank report released in 2011. There is a slow and steady increase in the GDP per capita of South Asian countries which are shown in Figure 1.

The region lies at almost exactly half the income per person of the World Bank's low- and middle-income countries. The economically best-off countries in the region are Maldives ($7,641), Bhutan ($5,328), and Sri Lanka ($4,555). In the second tier lie India ($3,072) and Pakistan ($2,410). Bangladesh ($1,488), Nepal ($1,075), and Afghanistan ($1,019) are by far the poorest. Beyond this diversity of incomes, there are also wide ranges of economic well-being within the various countries.

Table 3 shows the major economic indicators of South Asian countries of our research area of interest. According to this table we have seen that the per capita GDP of Maldives is the highest among all the south Asian countries. Sri Lanka, Bhutan, and India are the next best per capita GDP

earners in the South Asian countries respectively. On the other hand, Maldives have the highest share of services whereas Bhutan is the least among all the countries. Overall, there is a significant presence of developing and under developing pattern of economy are observed in the region of SAFTA.

In fact the growth in the service sector and the per capita GDP of almost all the countries of South Asia has been improved over the last two decades. To identify whether there is any positive link between these two or not we run the line graph of these two variables for the period of 1990-2010 on an individual country basis. This diagrammatic representation of the member of SAARC country is shown in Figure 2.

In Figure 2, it is shown that the per capita GDP is significantly higher in Maldives compare to other countries in the SAFTA region. Among all the other six countries, Sri Lanka is in the second top position followed by Bhutan. Both Nepal and Bangladesh are in the least position with a very little improvement in the per capita GDP over the years. The most remarkable thing about the per capita GDP of the SAFTA members are that despite of having an average population growth of 1.7 all the countries are on the trend of increasing the per capita GDP.

Figure 3 shows the share of service sector on the GDP of the members of SAFTA. The service sector constitutes a significant share of gross domestic product (GDP) in most of the developing countries in South Asia. In the context of South Asia where growth rates in services sector has been fluctuating during the last two and a half decade, the sub continent country (Bangladesh, India, and Pakistan) have been the exceptions with consistent growth. Sri Lanka and Nepal have been experiencing a significant positive trend for the last decade whereas there is a decline trend or no improvement for Bhutan for the last two decades. Though the share of service

sector in the GDP of Maldives is the highest among all the members of South Asia, it has huge fluctuations in the last decade and move into downturns to upturns trend in the last 5 years.

One of the main areas of concentration of our paper is to identify the trend of contribution to the service sector to GDP using a sample of seven countries from the SAFTA region.

3. Literature Review

While a number of studies have examined the performance of the South Asian Manufacturing sector, none of the available studies has explicitly considered the South Asian service sector. We have found some of the literature that partially discussed this issue either on the member of SAFTA or on the other region of the world. The major findings of all those relevant papers are briefly discussed in this section.

Busari T.D. (2007) attempts to investigate the process behind the declining contribution of the service sector to GDP using a sample of fifteen (15) countries from the ECOWAS sub region over the period 1985 to 2006. The study observed that factors such as external debt service, domestic capital formation, and household consumption are positively related to the transformation process of the service producing sector while this process is negatively related to net inflow of foreign direct investment. Based on their PLS model without fixed effects, it is observed that the ratio of external debt service to export is negatively related to the transformation process of the service sector. The PLS model with the fixed effect option observed that amongst the newly included fundamentals, ratio of external debt service to export and net foreign direct investment were observed to be negatively but significantly related to service share. The GLS estimation is quite similar to the PLS with fixed effect estimation.

Ajmair and Ahmed (2011) analyze the factors behind the growth of the services sector in Pakistan. This study shows that growth acceleration of the services in the period 1990-2005 was mostly due to faster growth in communication services, financial services, business services (IT) and community services (education and health). They estimated separate regression equations using time series data to explain growth in each service activity. Regression results show that for all the fast growing sub-sectors, the dummy for TSC (Trend growing services), WSRT (Whole Sale and Retail Trade), FI (Finance and Insurance), PAD (Public Administration and Defense), and CS (Community Services) are significant whereas dummy for OD (Ownership of Dwellings) is insignificant for the period1991-2005. The findings of this study suggest that there is considerable scope for further rapid growth in the Pakistani service economy.

Pattanaik and Nayak (2011) investigate the employment intensity of service sector growth in India and examine the role of fundamental macroeconomic factors in determining the same. The results indicate that over the years, while output growth rate in service sector has increased, employment growth rate has decelerated significantly leading to considerable fall in employment elasticity. Coupled with this, there is predominance of low productive and unskilled labor based activities in service sector. Regression results based on the time-series data from 1960-61 to 2004-05 further indicate that investment friendly environment, better public expenditure management, effective labor policies and proper structural transformation are the key to achieve higher employment elasticity in service sector.

The innovative focus of the paper of Sanchez and Roura (2009) observe the impact of tertiarisation on overall productivity growth, using a sample of 37 OECD countries in the period between 1980 and 2005. The data used in this paper are obtained from the Euklems database, in its

March 2008 version. A panel data model was used to carry out regressions of the overall productivity growth on the change in the weight of the service. The regressor set includes the growth of the service sector (in terms of percentage over total employment), the initial weight of services and starting productivity levels. These are complemented by other auxiliary variables, such as physical and human capital levels, the change in demographic composition and international openness. Researchers found that the relationship between the growth of services and overall productivity growth is positive and statistically significant. Additionally, it shows that the countries which were initially more specialized in services are those which demonstrate more positive dynamics in their productivity growth.

Anwar and Sam (2008) empirically examine the main determinants of the Singaporean services sector output. They used the Panel Generalized Least Squares which shows that services sector employment, human capital and the growth rates of real GDP have significant positive impact on the real value-added of the services industries. The sum of the estimated slope coefficients is less than one which suggests that the services industry is largely characterized by decreasing returns to scale. In addition, significant fixed effects are present across the selected industries. The paper also considers Johansen-Fisher panel cointegration technique which shows that the services sector employment, human capital and the services industry value-added are cointegrated. The estimated vector error correction models reveal that adjustment to the long-run equilibrium is fairly slow.

Singh (2010) scrutinizes the long-run equilibrium and short-run dynamic relationship between services sector and Gross Domestic Product (GDP) and between services and non services sectors in India. By using annual data from 1950/1951 to 2001/2002 from various issues of the Reserve Bank of India (RBI) publications the model is estimated using the optimal single-equation

and the maximum-likelihood system estimators. The study first uses the Ordinary Least Squares (OLS)-based two-step cointegration estimator of Engle and Granger (1987) (OLSEG) and performs unit root tests on the residuals of the model to test the mutually-reinforcing nulls of no cointegration (ADF and Philips Perron tests) and cointegration (KPSS test) between services sector and GDP and between services and nonservices sectors. All the estimators consistently suggest the cointegrating relationship between services sector and GDP as well as between services and non services sectors. The error correction model provides some support for unidirectional Granger-causality from services sector to GDP. The impulse response and variance decomposition analyses instead suggest the bidirectional causality between services sector and GDP and between services and non services sectors.

By using a 509 industry regional data of New York State's 2001 economy, Kay et al. (2007) demonstrates how the input-output (I-O) based method of hypothetical extraction can more appropriately measure the economic linkage of a broader range of contemporary economic sectors (including services) than traditional, final demand-induced, backward-linkage multipliers. Findings suggest that services dominate the New York State economy in terms of the traditional indicators of output and jobs. In addition, the economy continues to shift its center of gravity from manufacturing to service industries involving food, health, recreation, child care, and similar fundamental household services, along with retail and business services. These service industries exhibit a strong combination of forward and backward linkages and play a strong role in supporting economic activity within the economy, precisely because of their importance to households.

Mitra and Schmid (2008) examine the nature and composition of the tertiary sector's growth and its contribution to changes in poverty. By using the data of 15 major states in India over the

period 1980–1981 through 1997–1998, a multiple regression model has been estimated where the aggregate growth rate has been regressed on the growth rates of different sub-sectors. Result shows that growth in trade and real estate remained significant in explaining the variation in both yearly growth rate (YRGR) and three-year average growth rate (3YRGR). The extended analysis of this paper shows that tertiary sector, both in terms of share in GDP as well as the growth rate, is associated with a reduction in poverty. The results from factor analysis also confirm that several activities within the tertiary sector (relative size of transport and public administration) are positively associated with the economic growth and development. In other words, the tertiarisation of economic growth seems to be pro-poor.

Jagadish and Nilesh (2011) provide a brief overview of performance, prospects and problems encountered by the services sector in India's economy. The analysis of the sectoral composition of GDP and employment for the period 1950-2000 brings out the fact that there has taken place 'tertiarization' of the structure of production and employment in India. During the process of growth over the years 1950-1951to 1999-2000, the Indian economy has experienced a change in production structure with a shift away from agriculture towards industry and tertiary sector. Researchers have identified that there is a huge potential for growth in the services sector because of increase in disposable income, increasing urbanization, growing middle class, a population "bulge" in the working age groups providing 'demographic window of opportunity' and emergence of a wide array of unconventional /new services like IT, new financial services (ATMs, Credit cards) and tourism services (eco-tourism, health tourism) etc.

Zheng (2010) analyzes the structural shifting of Beijing's service sector and evaluate the effect on service sector with output requirement coefficient. By utilizing the regional input-output

table, researcher reveals that the remarkable transformation of demand structure in service sector contributes greatly to its rapid development in Beijing.

Hye and Wizarat (2011) estimate the association between financial liberalization and services sector in Pakistan by using data for the period 1971-2001, using the Autoregressive Distributed Lag (ARDL) approach. This study evaluates the impact of financial liberalization on services sector growth considering service sector gross domestic product as a dependent variable (Ys) on gross fixed capital formation in the service sector (Ks), labor force in the service sector (Ls), real interest rate (RIRt), and Financial liberalization index (FLIt). In order to investigate the level of integration, this study utilizes the Philips and Perron (1988) unit root test, and long run robustness is determined by using the ARDL approach to cointegration. The result shows that the concerned variables have unit root property in the level form, but are stationary in the first difference form and it gives a strong indication of the existence of a long run relationship among the variables in the services sector growth model. On the other hand, the empirical findings indicate that both FLI and RIR impede services sector growth in the long run. In contrast, only capital is positively related to the services sector growth in the long run. But in the short run, FLI, capital, and labor positively and RIR negatively determine the growth.

Schneider (1993) provides an outline of the development of the tertiary sector in Czechoslovakia and includes a comparison of this development with the advanced economies. With the exploratory technique of research the author identified education and health services are still operating inefficiently in the Czechoslovakia. On the other hand, the development of the tourist services, financial and consulting services are the greatest source of service sector to expand employment. Researcher estimated that after the end of the economic recession, half a million new

jobs in the service sector could be created by the end of the century as a result of a further structural shift to services, externalization of demand by manufacturing enterprises and the development of personal services. In this way the service sector would gain a position in the economy of Czechoslovakia that corresponds more closely with the level already achieved in the most developed economies.

Dasgupta and Singh (2005) revisit the role of the manufacturing industry and the informal sector in economic development, in the light of certain empirical tendencies which have been observed in many developing countries during the last decade. Empirical results indicate that both manufacturing and service sector are closely related to the growth of GDP. The implication is that the growth of services depends largely on the growth of manufacturing. Although this argument may apply to certain services, such as retailing and transportation, it is less obvious for many other services. In the case of IT, in particular, it seems that the services are leading to the expansion of manufacturing, rather than the other way round.

Thus, it can be inferred from the existing literature that the share of the service sector growth have a paradoxical result comparing one region to another.

4. Methodology and Data

The paper intends to examine whether the growth of the service sector is positively associated with the socio-economic variables or not. In order to know the reason behind the steady and increasing dominance of the growth of the service sector in the SAFTA region, we consider the Chenery and Syrquin's (1975) model to start with. We also extend this model by adding and applying new variables and techniques to identify the relationship of all these variables with the growth in the service sector of South Asian region.

We used a panel data set of seven member countries of SAFTA from 1990 to 2010 and all data are derived from the World Development Indicators (WDI). Four estimation techniques are applied in our model. The first is the panel least squares (PLS) or pooled OLS, the second is the PLS with fixed effects and the third is PLS with the random effects. Then we used Hausman test to identify whether fixed effects or random effects will be able to capture the best possible output of our estimation. On the basis of the Hausman test and its findings we run the generalized least squares (GLS) method as our fourth estimation technique to obtain the optimum output of our results which is free from heteroskedasticity and autocorrelation problem.

4.1 Methodology

The following Chenery and Syrquin's (1975) model is used as a baseline model of our study and it has been widely adopted in the literature - see Busari (2007), Prados (2005), and Heltberg (2002) among others - to examine sectoral transformations in general and their impacts on the economy.

Model 1:

$$x_{it} = \alpha_0 + \beta_1 \ln y_{it} + \beta_2 (\ln y_{it})^2 + \beta_3 \ln pop_{it} + \beta_4 (\ln pop_{it})^2 + \gamma T_j + \mu_i + \varepsilon_{it}$$

Here,

x_{it} = Share of services in GDP

y_{it} = GDP per capita in current U.S. dollars

pop_{it} = Population in millions

T_j = Time trend (j = 1, 2, 3,.....21)

μ_i = The composite disturbance includes unobservable country effects.

An examination of Model 1 reveals that the dependent variable (x) which is known as share of services to GDP is more appropriate in capturing the transformation of the service sector in

SAFTA member countries. The log linear form of GDP per capita (y) serves as an overall index of development as well as a measure of output which is expected to be positively associated with the share of service sectors in GDP. This can also be used to determine the elasticity of share of service in GDP with respect to output growth. The square term of log GDP per capita tries to capture the marginal effect of output per capita on the share of services in GDP. In other words, a positive value of the square term of log GDP per capita will indicate that the share of services in GDP will be increased at an increasing rate whereas a negative value will indicates that it will increase at a decreasing rate.

The country's population (pop) is introduced as an independent variable to control the effects of its size on the transformation process of the service sector in an economy. Size does, however, affect a surprising number of other development processes either directly or indirectly. On the other hand, the square term of the logarithmic form of population is used here to capture the marginal increase in population and their effects on the share of services in GDP.

The time trend variable (t) is used to investigate whether the service sector shares in GDP will increase overtime in the region of SAFTA or not. Thus, it will help us to identify the relationship between the trend variable and the share of services in GDP.

Model 2:

We extend Model 1 by adding three different factors that are expected to influence the share of services in GDP. These are growth rate of urban population (upg_{it}); gross fixed capital formation (gfc_{it}); and debt service on external debt (dse_{it}).

$$x_{it} = \alpha_0 + \beta_1 \ln y_{it} + \beta_2 (\ln y_{it})^2 + \beta_3 \ln pop_{it} + \beta_4 (\ln pop_{it})^2 + \beta_5 upg_{it} + \beta_6 gfc_{it} + \beta_7 dse_{it} + \gamma T_j + \mu_i + \varepsilon_{it}$$

As urbanization has been rapidly spreading in most of countries of South Asia, it is likely that it significantly impacts on the service sectors growth of SAFTA region. Thus, we are expecting that the growth rate of urban population would impact positively on the transformation process of the service sector.

Gross fixed capital formation (gfc) which is commonly known as gross domestic fixed investment is another important independent variable in Model 2. The expected sign for gfc is positive as we believe that there might be steady increase in growth of the service sector with the increase in gfc. It reflects the fact that the share of services in GDP is accelerated when more investment is directed towards productivity-enhancing areas.

Debt service on external debt is the sum of principal repayments and interests on all debts. We presume that it is negatively associated with the growth in the service sector. If the debt service on external debt is larger than the country's repayment ability, expected debt-service costs will discourage further domestic and foreign investment and this will slow down the share of services in GDP.

Model 3:

This specification includes all the factors that are considered in Model 2 along with SAPTA as a dummy. This can be symbolically represented as follows.

$$x_{it} = \alpha_0 + \beta_1 \ln y_{it} + \beta_2 (\ln y_{it})^2 + \beta_3 \ln pop_{it} + \beta_4 (\ln pop_{it})^2 + \beta_5 upg_{it} + \beta_6 gfc_{it} + \beta_7 dse_{it}$$
$$+ \beta_8 SDM + \gamma T_j + \mu_i + \varepsilon_{it}$$

Here, *SDM* is the dummy variable SAPTA which is used as a proxy of SAFTA. As the main objective of both SAPTA and SAFTA are very similar to each other, and the duration of SAPTA

(15 years) is way higher than that of SAFTA (4 years), we believe SAPTA dummy will be able to capture its effects more effectively on the share of services in GDP. The expected sign for SAPTA dummy is positive because if promoting economic growth and integration are part of SAPTA, then positive externalities will likely accrue to the growth in the service sector of the South Asian region.

4.2 Data

After carefully reviewing the literature on service sector transformation and growth, we decided to formulate and estimate our model for the members of SAFTA using secondary time series data on all the variables for the period 1990 to 2010. All the data used to measure the proxy of the variables of our models are collected from the World Development Indicators[3]. The square terms for both GDP per capita and population have taken into consideration in our models to explore curvilinear effects.

5. Results and Implications

Based on the Chenery and Syrquin's model and its extension, we run the panel least squares (PLS), PLS with fixed effects and PLS with random effects for all three models considered in this paper. The results of the estimation are separately shown in the Table 4, 5 and 6.

Table 4 depicts the results of Panel Least Squares (PLS) or Pooled OLS of each model. It shows that all signs do not corroborate our expectations except for debt service on external debt and SAPTA. On the other hand, in most of our models, the results of pooled OLS violate the economic relationship between one variable to another. It is also notable that the usual formula for OLS

[3] http://data.worldbank.org/data-catalog/world-development-indicators

standard errors in a pooled OLS regression typically overstates the accuracy and its t-statistics is greatly inflated. Another limitation of pooled OLS is that it ignores the panel structures of the data, treats observations as being serially uncorrelated for a given individual, with homoscedastic errors across individuals and time periods. Thus, the results of Table 4 for pooled OLS are not the focus of our findings.

In addition, it is well known that the pooled OLS estimator is inconsistent if the true model is the fixed effect model. This induces us to run the PLS with fixed effects and the results are shown in Table 5. We also run PLS with random effects and show the results of its estimation in Table 6. This will help us identify whether the estimation of fixed effects or random effects will be appropriate to explain all explanatory variables.

For a limited or small number of observations, fixed effects is widely thought to be a more convincing tool for estimating panel data. In addition, it will control for all possible characteristics of the variable of our study so long as those characteristics do not change over time. This makes us to use fixed effects and it is almost always much more convincing than random effects for policy analysis using aggregate data (Wooldridge, 2005).

Based on the above analysis we focus on the results of PLS with fixed effects for all the three models in Table 5. In all the models of PLS with fixed effects the estimations are mostly fulfilled the expected relationship of the variables except for population and urban population growth rate.

From Table 5, it is found that the major determinant of the transformation process of the service producing sector in the SAFTA region is the log of GDP per capita. In other words, a one percentage increase in per capita GDP will on average leads to 0.58 percentage point increase in the

growth of the service sector. Thus, the increase in GDP per capita will promote a development in the service sector which in turn will help to reduce poverty in the region of SAFTA. On the other hand, log GDP per capita squared turns out to be negative in my fixed effects estimation. This indicates that the share of services in GDP is increasing at a decreasing rate with the per capita GDP in the SAFTA region.

We have found an insignificant negative association between population and share of services in all the model of fixed effects estimation in Table 5. One of the possible reasons of this negative relationship is that the growth in population is faster in the SAFTA region than the overall growth in the accumulation of services. The square term of population also shows the deceleration of growth in the service sector but turns out to be insignificant as well.

The fixed effects model further suggest that overtime there is a significant increase in the share of the service producing sectors as the trend variable is observed to be positive and significant.

The estimation of urban population growth rate is very much similar to the estimation of population. The only difference is that it is negatively significant with the association of service sector growth. One of the main reasons behind this is that though the growth of urban population is increasing overtime in the region of SAFTA it fails to absorb these people to employ in the service sector. With the increase in urban population there is a massive increase in the unemployment problem in the region of SAFTA as well. On the other hand, a large number of inhabitants in South Asian countries are living in impoverished slums and squatter settlements, with little or no access to adequate water, sanitation, or electricity. These are the reasons of poor infrastructure, low services in health and education in SAFTA member countries. All these are taken together; an increase in

urban population growth rate will slow down the development of transformation process in SAFTA member countries. More specifically, a one percentage point increase in the growth of urban population will reduce the service sector growth by one percentage point. Thus, the findings of this call for a rethinking of the economic relationship between growth in the urban population and the share of services in GDP. We also run an interaction term as an experiment to capture the interactions between population and urban population growth. The estimation of this pop_{it}*upg_{it} was insignificant and did not affect our findings.[4]

In Table 5, it is also observed that the gross fixed capital formation is positively and significantly related to the transformation process of the service sector. More precisely it can be said that a dollar increase in gfc will on average lead to 0.04 percentage point increases in growth of the service sector.

On the other hand, the debt service on external debt were observed to be negatively and significantly related to the service share. In other words, a dollar increase in dsed will on average lead to 0.005 percentage point decreases in share of services.

Finally, we include the SAPTA dummy variable in Model 3. Though it meets the positive expected relationship with share of services but turns out to be insignificant in our findings. Thus, it can be said that the formation of SAPTA does not have any significant impact on the transformation process of the service sector of the economy

[4] The interaction between pop_{it}*upg_{it} is -.9916852 which is insignificant at 5% level and did not affect the overall findings of fixed effects estimation.

The fixed effects model in Table 5 was able to account for over 70 percent of the variation in the data. The F- statistics which show joint significance of the included variables in the fixed effects model were also observed to be significant.

In Table 6 we showed the results of random effects for all the three different models and the results of it are very much similar to the pooled OLS. According to our earlier discussion about fixed and random effects, we considered the fixed effects estimation are more appropriate for the model that we are dealing with. This can also be proved by applying Hausman test for Model 3.

It is notable that a rejection using the Hausman test is taken to mean that the key random effects assumption is false, and then the fixed effects estimates are appropriate to use. Now based on the Hausman Test in Table 7, we can see that the tests statistic (128.97) is greater than the critical value of a Chi-squared. Therefore, we reject the null hypothesis. Given such result, the preferred model is the fixed effects. This induces us to apply generalized least squares (GLS) approach with fixed effect for the third model of our paper. This will robust the results of fixed effects. The results of GLS estimation with fixed effects is shown in table 8 and it is more robust as it proves the corrected homoscedasticity and auto correlation.

6. Conclusions

The findings of the paper indicate that GDP per capita have a meaningful and positive effect on transformation process of the service producing sector whereas urban population growth rate have a significant negative impact on the development of the transformation process of the service sector in SAFTA member countries. Thus, an increase in GDP and the reduction of urban population growth will promote an expansion in the service sector which in turn will help to reduce poverty level in South Asia. Also, the evidence points to a positive contribution of the service sector overtime as we observed a positively significant relationship between the trend variable and

share of service in GDP. On the other hand, unlike some other papers, population does not appear to be significant factors of growth in service for the member of SAFTA. However, the results can be different if the South Asian economy will be able to absorb its huge population to employ in the service sector.

The study also observes that a reduction in debt service on external debt will boost the share of the service sector in the GDP. On the other hand, a significant positive relationship between gross fixed capital formation and the share of services indicates that higher investment towards service producing sector will increase the share of services in GDP which in result will increase the employment and decrease the level of poverty. The SAPTA dummy turns out to be statistically insignificant in our study. This indicates that the operation of SAFTA have no impact on the growth of the service sector in the South Asian region. So, how to design SAFTA for increasing share of services in GDP in the South Asian region still remains nagging question for the policy makers of SAFTA member countries.

In sum, it can easily be inferred that service sector is a sector with immense potential to help put a dent in the level of poverty if proper attention is paid to its development or transformation. However, the validity of the study can be more strengthening if we may add some other factors that are able to capture the impacts on service sector transformation. Among them, the availability of loans; inter regional trade among SAFTA members; and institutional factors like political situation of SAFTA member countries are worth mentioning to oversee their impacts on the transformation process of the service sector.

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Appendix

Table 1. Schedule of Tariff Reductions Under SAFTA

Countries	Existing Tariff Rates	Tariff Rates Under SAFTA Agreement	Time Schedule
SAFTA 1st Phase			
India, Pakistan, and Sri Lanka	More than 20% Less than 20%	Reduced to 20% Annual Reduction of 10%	2 Years 2 Years
Afghanistan, Bangladesh, Bhutan, Maldives, and Nepal	More than 30% Less than 30%	Reduced to 30% Annual Reduction of 5%	2 Years 2 Years
SAFTA 2nd Phase			
India, and Pakistan	20% or below	Reduced to 0-5%	5 Years
Sri Lanka	20% or below	Reduced to 0-5%	6 Years
Afghanistan, Bangladesh, Bhutan, Maldives, and Nepal	30% or below	Reduced to 0-5%	8 Years

Source: Hossain (2005)

Table 2. Poverty Levels in SAFTA Member Countries

Country	No. of poor people (in million) in 2010		Percentage of people live below poverty line	
	Under the $1.25 Per Day Poverty	Under the $2.00 Per Day Poverty	Under the $1.25 Per Day Poverty	Under the $2.00 Per Day Poverty
Bangladesh	67.57	117.95	43.3%	76.5%
Bhutan	0.05	0.17	10.2%	29.8%
India	389.49	812.79	32.7%	68.7%
Maldives	0.05	0.11	16%	34%
Nepal	15.07	22.00	24.8%	57.3%
Pakistan	30.61	97.10	31.0%	60.2%
Sri Lanka	1.30	5.66	07.0%	29.1%

Source: Wan and Sebastian (2011) and Wikipedia(2012)

Table 3. Main Economic Indicators of South Asian Countries (2010)

Country	GDP Per Capita (Current $US)	GDP Growth (Annual %)	Services, Value Added (% of GDP)	Population (Total , in Millions)	Population Growth (Annual %)
Afghanistan	501.47	8.2	47.91	34	2.83
Bangladesh	674.93	6.06	52.95	149	1.12
Bhutan	2088.26	7.44	38.08	1	1.70
India	1410.32	8.80	54.73	1225	1.38
Maldives	6039.43	9.86	82.32	0.32	1.32
Nepal	524.77	4.55	48.48	30	1.77
Pakistan	1018.87	4.14	53.38	174	1.80
Sri Lanka	2375.44	8.01	57.76	21	0.91

Source: World Development Indicators, The World Bank

Table 4. Pooled OLS Estimation
Dependent Variable: Share of Services in GDP

Variables	Model 1	Model 2	Model 3
Constant	244.533 (77.525)***	321.617 (83.535)***	325.62 (80.312)***
Log (gdp per capita)	- 64.278 (14.593)***	- 65.011 (14.196)***	- 68.400 (13.769)***
[Log (gdp per capita)]^2	5.508 (1.028)***	5.572 (1.055)***	5.823 (1.023)***
Log (population)	-1.585 (4.450)	- 10.974 (5.444)**	- 10.725 (5.458)**
[Log (population)]^2	.0737 (.123)	.382 (.159)***	.374 (.161)**
Time trend	-.0511 (.131)	.041 (.126)	- .252 (.208)
Urban population growth rate		- 2.086 (.500)***	- 2.190 (.484)***
Gross fixed capital formation		- 0.148 (1.755)	- 0.173 (2.154)
Debt service on external debt		- 0.011 (.020)	-0.027 (.020)
SAPTA as a dummy			4.813 (2.181)**
Adj R^2	0.582	0.624	0.643
F Stat. (Prob.)	37.29 (0.000)	68.05 (0.000)	77.04 (0.000)

*** Significant at 1% level, ** Significant at 5% level, * Significant at 10% level

Table 5. Fixed Effects Estimation

Dependent Variable: Share of Services in GDP

Variables	Model 1	Model 2	Model 3
Constant	3.004 (169.953)	- 26.273 (202.190)	- 22.064 (202.935)
Log (gdp per capita)	58.071 (10.785)***	57.612 (11.047)***	58.454 (11.187)***
[Log (gdp per capita)]^2	- 4.152 (.772)***	- 4.149 (.780)***	- 4.239 (.799)***
Log (population)	- 8.023 (17.386)	- 3.830 (23.312)	- 4.357 (23.401)
[Log (population)]^2	-.051 (.537)	-.184 (.728)	-.175 (.730)
Time trend	.309 (.177)*	.335 (.201)*	.387 (.223)*
Urban population growth rate		- 1.083 (.321)***	- 1.009 (.349)***
Gross fixed capital formation		0.011 (0.004)***	0.046 (0.183)***
Debt service on external debt		- 0.005 (.001)***	- 0.005 (0.002)***
SAPTA as a dummy			0.476 (.877)
Adj R^2	Within = 0.618 between = 0.776 overall= 0.711	within = 0.618 between = 0.768 overall = 0.739	within = 0.619 between = 0.663 overall = 0.727
F Stat. (Prob.)	130.51 (0.000)	113.39 (0.000)	106.06 (0.000)

*** Significant at 1% level, ** Significant at 5% level, * Significant at 10% level

Table 6. Random Effects Estimation

Dependent Variable: Share of Services in GDP

Variables	**Model 1**	**Model 2**	**Model 3**
Constant	248. 632 (78.012)***	330.847 (79.755)***	339.211 (78.011)***
Log (gdp per capita)	- 65.325 (16.027)***	- 67.052 (15.865)***	- 70.948 (15.577)***
[Log (gdp per capita)]^2	5.519 (1.159)***	5.712 (1.145)***	5.993 (1.124)***
Log (population)	- 1.654 (4.102)	- 11.857 (4.879)***	- 11.218 (4.775)**
[Log (population)]^2	0.068 (.117)	.407 (.145)***	.387 (.142)***
Time trend	- .079 (.154)	.050 (.154)	- .243 (.188)
Urban population growth rate		- 2.097 (.502)***	- 2.190 (.479)***
Gross fixed capital formation		- 0.148 (1.783)	- 0.174 (0.039)
Debt service on external debt		- 0.029 (.020)	- 0.030 (.020)
SAPTA as a dummy			4.985 (1.921)***
Adj R^2	within = 0.099 between = 0.793 overall = 0.591	within = 0.065 between = 0.862 overall = 0.628	within = 0.066 between = 0.874 overall = 0.658

*** Significant at 1% level, ** Significant at 5% level, * Significant at 10% level

Table 7. Hausman Test

Variables	----------Coefficients----------		(b-B) Difference	Sqrt (diag(v_b-v_B)) S.E.
	(b) Fixed Effects	(B) Random Effects		
$\ln y_{it}$	58.453	- 70.948	-12.495	.249
$(\ln y_{it})^2$	- 4.239	5.993	-10.232	.880
$\ln pop_{it}$	- 4.357	-11.218	-15.575	.017
$(\ln pop_{it})^2$	-.175	.387	- 0.562	.735
T_j	.387	-.243	0.630	.0275
upg_{it}	-1.009	- 2.190	1.181	-
gfc_{it}	0.046	- 0.174	0.219	-
dse_{it}	- 0.005	- 0.029	0.025	-
SDM	0.476	4.986	- 4.509	.007

b = consistent under Ho and Ha; obtained from panel least squares

B= inconsistent under Ha, efficient under Ho; obtained from panel least squares

Test: Ho: differences in coefficients not systematic

Ha: differences in coefficients are systematic

chi2(7) = (b-B)' [v_b-v_B)^(-1)] (b-B)

= 128.97

Prob>chi2 = 0.0000

Table 8. GLS with Fixed Effects on Model 3 (Dependent Variable: Share of Services in GDP)

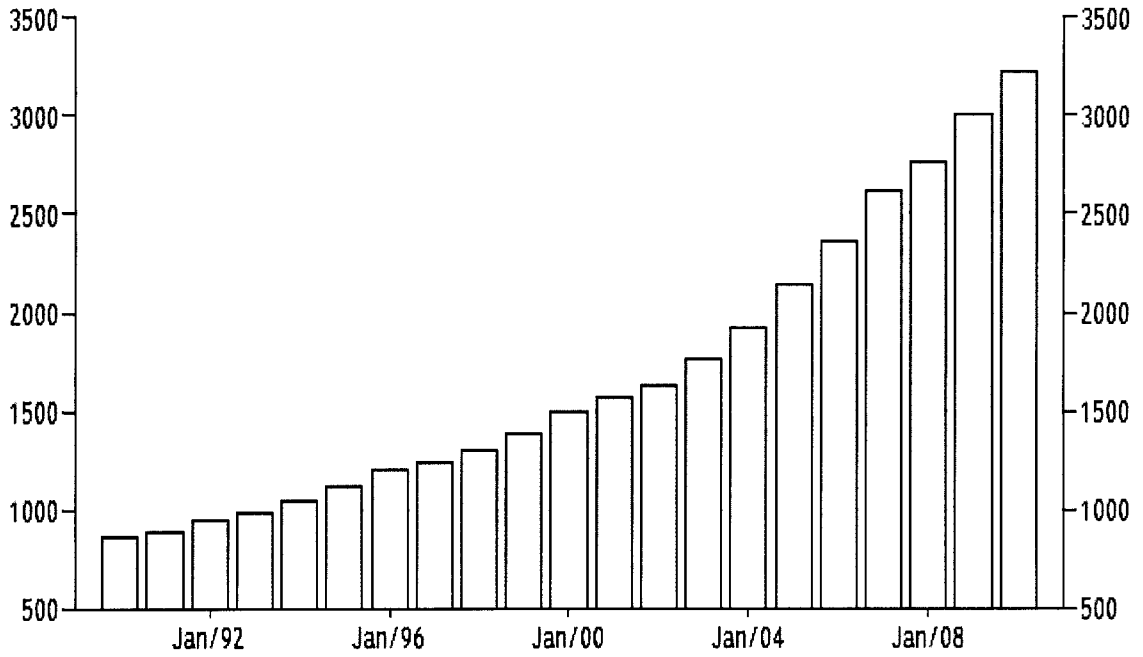
Panels: Homoskedastic

Correlation: No auto-correlation

Variable	Model 3
Constant	- 21.716 (205.497)
Log (gdp per capita)	57.765 (11.322)***
[Log (gdp per capita)]^2	- 4.142 (.810)***
Log (population)	- 9.985 (23.401)
[Log (population)]^2	-.145 (.751)
Time trend	.321 (.230)*
Urban population growth rate	-.986 (.352)***
Gross fixed capital formation	0.041 (0.023)***
Debt service on external debt	- 0.006 (0.001)***
SAPTA as a dummy	0.517 (.939)
Adj R^2	0.763
F Stat. (Prob.)	114. 75 (0.000)

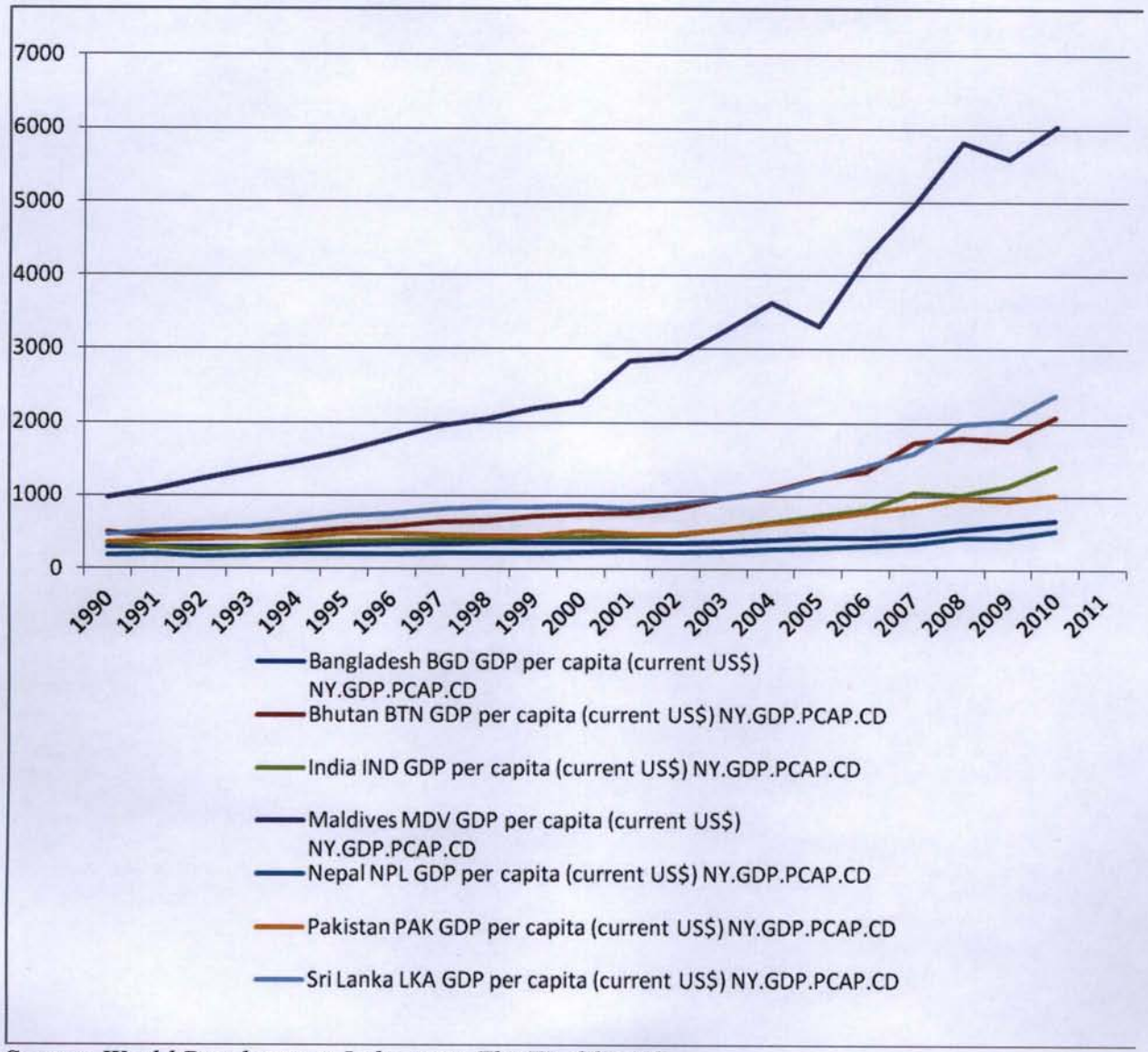
*** Significant at 1% level, ** Significant at 5% level, * Significant at 1% level

Figure 1. GDP per capita; PPP (US dollar) in South Asia (1990-2011)



Source: World Bank Report 2011

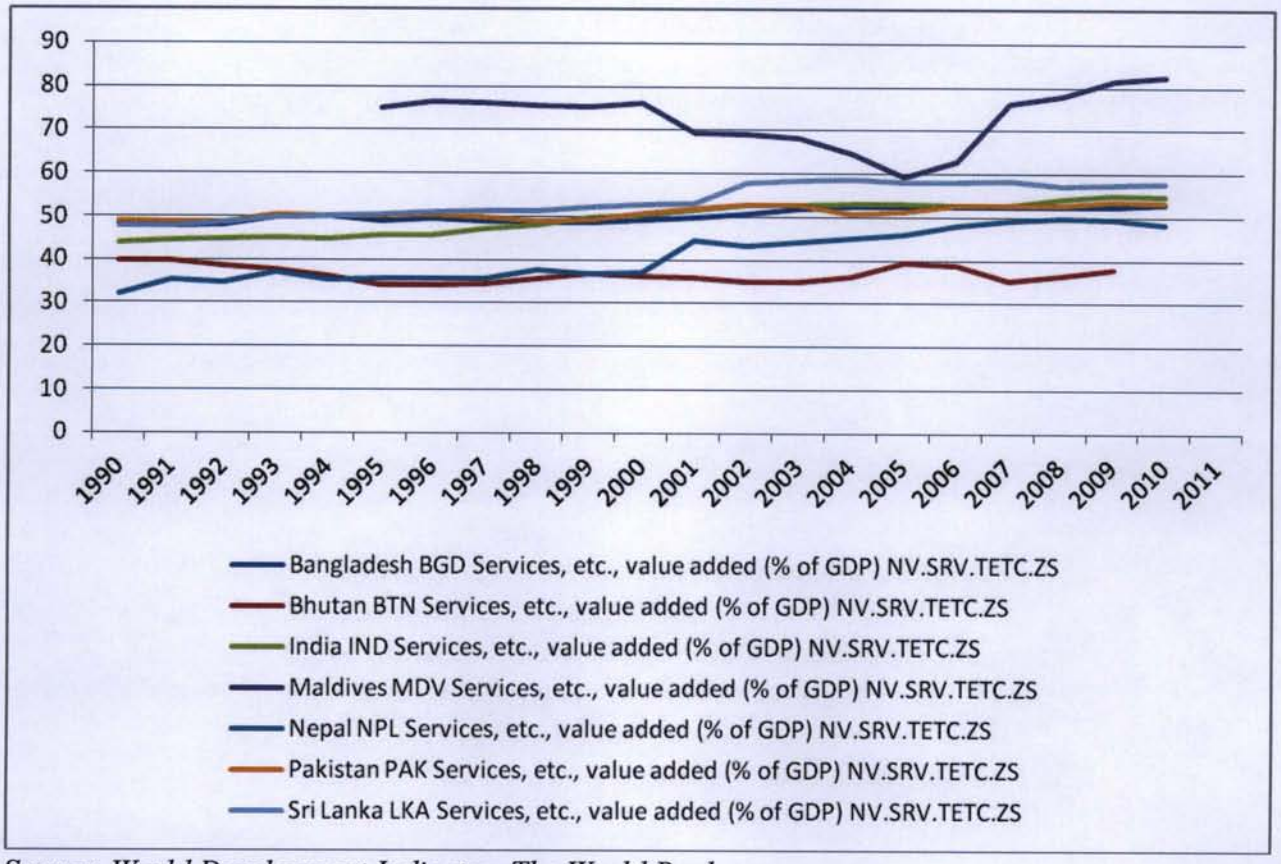
Figure 2. Per Capita GDP of SAFTA Member Countries (1990-2009)



Source: World Development Indicators, The World Bank

SOUTHWORTH
100% Cotton Fiber

Figure 3. Share of Service Sector on GDP of SAFTA Member Countries (1990-2009)



Source: World Development Indicator, The World Bank

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